भारतीय मानक
Indian Standard

IS 1610 : 2018
(Superseding IS 14769 : 2000)

घरेलू सिलाई मशीन — सामान्य आवश्यकताएं

(चौथा पुनरीक्षण)

Household Sewing Machines — General Requirements

(Fourth Revision)

ICS 61.080

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भारतीय मानक ब्यूरो
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Sewing Machines Sectional Committee, MED 29

FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Sewing Machines Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first published in 1960 and subsequently revised in 1981, 1989 and 2000. The present revision has been undertaken to incorporate the latest references to the sewing machine components and performance requirement standards and changes made in accessories in service box.

This Indian Standard supersedes IS 14769 : 2000 ‘Household sewing machine head — General requirements’.

In the formulation of this standard, considerable assistance has been derived from the following standards issued by Japanese Industrial Standard Committee:

JIS B9011 : 1978	Household lock-stitch machine
JIS 89014 : 1975	Household straight lock-stitch sewing machine heads

The composition of the Committee responsible for the formulation of this standard is given in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the results of a test or analysis shall be rounded off in accordance with IS 2 : I960 ‘Rules for rounding off numerical values (*revised*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

HOUSEHOLD SEWING MACHINES — GENERAL REQUIREMENTS

(Fourth Revision)

1 SCOPE

This standard covers the general requirements for straight lock-stitch sewing machine head with central bobbin, oscillating shuttle and sewing mechanism designed for operation with any mode of driving arrangement (such as hand attachment/foot arrangement/electrical motor). The hand attachment with base and/or cover/ foot arrangement with stand and table/electrical motor with base (any one of the three combinations) may be supplied as optional parts of sewing machine head.

2 REFERENCES

The Indian Standards listed in Annex A contain provisions which, through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards given in the Annex A.

3 DRIVING ARRANGEMENTS

3.1 Hand Operated Sewing Machine

A hand-operated sewing machine shall be driven by a hand-operated driving attachment conforming to IS 13192. It shall consist of a handle which folds upon the machine to allow it for placing of cover over the base. The handle shall be so geared that one revolution will drive the flywheel at least three times. Hand-operated sewing machine shall also be suitable for foot/ electric drive.

3.2 Foot Operated Sewing Machine

Foot operated sewing machine shall be driven by a round leather belt from a hand wheel actuated by a foot treadle through a pitman rod. The pitman rod shall have a ball and a socket joint at the treadle end and a ball bearing at the crank end. Hand wheel and crank shall be mounted by tri-union bearings. A device shall be furnished to permit throwing the belt either off or on the hand wheel when as desired. A safety dress guard shall be provided.

3.3 Motor-Driven Sewing Machines

3.3.1 *Electrical Equipment*

The electric motor-driven sewing machines shall be supplied with starting switch and speed controller. Interconnecting wiring between speed controller and motor shall be of a flexible three cored polyvinyl chloride (PVC) or equivalent wire to permit adjustment of the driving motor/speed controller. The electrical equipment shall conform to the safety requirements according to IS 302 (Part 1). Electric sewing light fixture shall be an optional feature.

3.3.1.1 The electric motor shall be of not less than 0.04 kW. The selected rating of the motor shall be such as to ensure that it is not exceeded under full load operating condition. The motor shall generally comply with requirements of IS 996. It shall be suitable for operating on 220/240 volts, single phase 50 hertz a.c. supply or at 220/240 volts d.c. supply. The starting characteristics of the motor shall suit the driven machines.

3.3.1.2 *Speed controller*

Motor driven sewing machines shall have a foot operated speed controller capable of starting, stopping and varying the speed smoothly.

3.3.1.3 *Pulley and belt*

The motor shall be fitted with a pulley of the size appropriate for driving the sewing machine satisfactorily at the required speed. A suitable endless driving belt made of suitable composite synthetic rubber with fabric reinforcement shall be used.

4 SEWING MECHANISM

4.1 Design

Sewing machine head shall be of single needle design, equipped with a sewing mechanism for producing two thread lock stitch. A minimum clearance of 5 mm shall be provided between the presser foot in its up position and the needle plate.

4.2 Reverse Stitch Mechanism

Sewing machines head shall be provided with a suitable mechanism to reverse the feeding action of the feed dog for back tack stitching. The feeding direction shall be controlled by the stitch regulator and shall be capable of being changed while the sewing machine is in operation.

4.2.1 Stitch Regulator

The stitch regulator shall be conveniently located in the sewing machine and may conform to IS 13872. It shall be capable of adjusting and locking the number of stitches over a range from 8 to 20 stitches over 25 mm or minimum 8 stitches over 25 mm.

There shall be an indication of the increase/decrease of the length of stitch.

4.3 Thread Tension

A thread tension arrangement shall be provided in each sewing machine for both upper and lower threads and it shall be adjustable to the amount of tension required to achieve satisfactory stitches. Each sewing machine head shall be equipped with an automatic thread tension release, effective when the pressure foot is raised to the maximum height.

4.4 Timing

The timing of the needle in relation to the movement of the shuttle and clearance between the side of the needle (nearer to the shuttle) and the shuttle point should be such as to ensure that stitches are not skipped.

4.5 Flywheel

Each sewing machine head shall be fitted with a flywheel which may conform to IS 12798, designed in such a manner that the flywheel can be disengaged from the sewing machine when required.

4.6 Bobbin Winder

Wind the bobbin which can be actuated without separate power but by friction contact with the flywheel or driving belt of the sewing machine. The bobbin winder shall have suitable tension arrangement for controlling the thread to wind it evenly and with proper tension on the bobbin which shall be automatically released when the bobbin is filled to nearly 80 percent of its capacity. The bobbin winder may conform to IS 13972.

4.7 Thread Spool Pin

Thread spool pin may be provided for each sewing machine head to hold spools/tubes of thread on arm and bed plate.

5 OTHER COMPONENTS

The other components of the sewing machine head may conform to existing Indian Standards on sewing machine components. A list of these standards is given in Annex B.

6 LUBRICATION

Provision shall be made for ready and proper application of lubricant to all bearing and frictional surfaces on sewing machine head. Lubricating orifices may be identified by using the word ‘OIL’.

Hand attachment gears that are generally required to be lubricated shall be suitably covered to exclude dust and dirt. An orifice for lubricating oil shall be provided on the cover/body of hand attachment.

7 TABLE/BASE/COVER/STAND (OPTIONAL)

7.1 Table/base/cover/stand may be supplied as optional accessories along with sewing machine head and shall be supplied in wood or other suitable materials.

7.2 Wooden Table or Base

Wooden table and base may conform to IS 12789.

7.3 Table, or Base or Cover (Other Materials)

If mutually agreed between purchaser and supplier, base, cover or table for sewing machine head may be supplied in other materials like plastics and other similar materials.

7.4 Stand

Stand for the sewing machine shall conform to IS 12740, if supplied with sewing machine head.

7.5 Stand (Other Materials)

If mutually agreed between purchaser and supplier, stand for sewing machine head may be supplied in other materials like sheet metal (HR coil) or mild steel pipe section and other similar materials.

8 WORKMANSHIP AND FINISH

8.1 Sewing machine head and its accessories shall be of rigid construction, neat in appearance and ready for use. They shall be free from objectionable vibrations and shall be quiet in operation.

8.2 Surface coated with paint and varnish shall be hard and smooth, free from irregularities, flaws, cracks, dust specks and other defects. The appearance of the painted surface shall be graceful, good in colour and lustrous. The paint shall be unaffected by lubricating oils and not liable to soften at a temperature up to 80°C. The transfer work shall be clear, neat and perfectly adhered to the paint coated surface and shall have a protective coat of clear stoving varnish.

8.3 Plating

Nickel and chromium-plated parts shall satisfy the following conditions:

a) Colour and luster shall be good;

b) The surface shall be smooth and free from plating defects, such as blisters, pits, clouds, patches, cracks and stains;

c) Coating shall not peel off easily;

d) The thickness of nickel plus chromium coating of needle plate, slide plate, clamp, stop motion screw and flywheel shall be conforming to service condition number 1 with the designation Fe/Ni 10b Cr r of IS 1068; and

e) The bearing surfaces of the needle bar and presser bar may be hard chrome plated to a minimum depth of 0.004 mm or case hardened. If the hardness for case hardened needle bar and presser bar is between 450 to 500 HV [*see* IS 1501 (Part 1)], then the bushes of suitable material shall be provided in sewing machine arm or otherwise normalized presser bar and needle bar shall be used.

9 SAMPLING

9.1 Unless otherwise agreed to between the supplier and the purchaser, the sampling plan as given in **9.1.1** shall be followed.

9.1.1 In case the sewing machine head is assembled from the components manufactured to the requirements of various Indian Standards and an adequate proof through the record of tests is submitted to the buyer, the single sampling plan with inspection level II and acceptable quality level (AQL) of 1 percent as given in Tables 1 and 2 of IS 2500 (Part 1) shall be followed.

10 TESTS

10.1 Accuracy Requirements

Sewing machines head shall conform to accuracy requirements prescribed in IS 7491.

10.2 Sewing Requirements

Sewing machine head shall conform to sewing requirements prescribed in IS 7492.

10.3 Durability Requirements

Sewing machines head shall conform to durability requirements prescribed in IS 7493.

11 ACCESSORIES IN SERVICE BOX

11.1 The following items shall be supplied with each sewing machine head in a plastic box:

a) One oil bottle, filled with 20 ml or 50 ml oil minimum;

b) Two screw drivers (engineering), one large and one small;

c) Three bobbins, plastic or metallic;

d) Three sewing machine (HAx1) needles;

e) One embroidery plate (where drop feed arrangement is not provided), optional;

f) A booklet containing manufacturer’s operating instructions and technical characteristics, such as nominal power input in watts (W) (in case of motor-driven sewing machine) and capability of adjustment of number of stitches over 25 mm;

g) Spool pin pad or felt washers (2 Nos.); and

h) Needle threader.

11.2 Spare parts and attachments given in **11.1** shall fit the sewing machine head with which they are provided and shall be interchangeable with sewing machines heads of the same make and model.

12 MARKING

12.1 Each sewing machine head shall be identified by a nameplate giving the name of the model, manufacturer’s name or trademark. The serial number of the sewing machine head shall be engraved/punched on the bed plate.

12.2 BIS Certification Marking

The product may also be marked with the Standard Mark.

12.2.1 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act,* 2016 and the Rules and Regulations made thereunder. The details of the conditions under which the licence for use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

12.2.2 The product may be marked with BIS Standard Mark at all the detachable components along with the Standard Mark, trade-mark and BIS Licence No.

13 PACKING

Packing of sewing machine head shall be in accordance with IS 8355. Contents of packaging whether only sewing machine head or sewing machine head with accessories should be clearly mentioned in the packaging.

ANNEX A

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
277 : 2018	Galvanized steel sheets (plain and corrugated)
302 (Part l) : 2008	Safety of household and similar electrical appliances: Part 1 General requirements (*sixth revision*)
303 : 1989	Specification for plywood for general purposes (*third revision)*
2009 : 1979	Single phase small a.c. and universal electrical motors (*fourth revision)*
1068 : 1993	Electroplated coatings of nickel plus chromium and copper plus nickel plus chromium — Specification (*third revision*)
1501 (Part l) : 2013 /ISO 6507-2 : 2005	Metallic materials — Vickers hardness test: Part 1 Test method (*foruth revision*)
2500 (Part l) : 2000	Sampling inspection procedures: Part 1 Attributes sampling plan indexed by Acceptance Quality Level (AQL) for lot by lot inspection (*second revision)*
7491 : 1989	Accuracy requirements for sewing machines for household purposes (*first revision*)
7492 : 1989	Sewing requirements for sewing machines for household purposes *(first revision)*
7493 : 1989	Sewing machines, household — Durability requirements *(first revision)*
8355 : 1977	Code of practice for packaging of sewing machine for household purposes
12740 : 1989	Household sewing machines — Stand — Specification
12789 : 1989	Household sewing machines — Tables and base
12798 : 1989	Household sewing machines — Flywheels — Specification
13192 : 1991	Household sewing machines — Hand attachment assembly
13872 : 1993	Household sewing machine — Stitch regulator — Specification
13972 : 1994	Household sewing machine — Bobbin winder assembly —Specification

ANNEX B

(*Clause* 5)

INDIAN STANDARDS ON SEWING MACHINES COMPONENTS

IS No.	*Title*
1294 : 1989	Bobbins for sewing machines for household purpose (*third revision*)
1295 : 1990	Household sewing machines — Needle bar — Specification (*second revision*)
1296 : 1989	presser foot for sewing machines for household purposes (*second revision*)
1297 : 1991	Household sewing machines — Pressure bar — Specification (*third revision*)
2181 : 1973	Household sewing machines needles for household purpose (*first revision*)
3290 : 1994	Thread take-up lever for cam type sewing machines for household purpose (*first revision*)
3291 : 1968	Thread take-up cams for sewing machines for household purposes (*first revision*)
3299 : 1969	Oscillating rock shafts for sewing machines for household purposes (*first revision*)
3375 : 1991	Household sewing machines — Bobbin case — Specification (*second revision*)
3816 : 1966	Connecting rods for sewing machines for household purposes
3817 : 1991	Household sewing machines — Arms shaft — Specification (*first revision*)
3868 : 1966	Feed ming rock shaft for sewing machines for household purposes
4181 : 1995	Feed fork for sewing machines for household purposes
4188 : 1995	Oscillating shaft for sewing machines for household purposes
4338 : 1991	Household sewing machines vertical oscillating shuttle — Specification (*second revision*)
4339 : 1997	Needle bar link studs for sewing machines for household purposes
4340 : 1967	Needle bar link for sewing machines for household purposes
4341 : 1967	Feed holder roller for sewing machines for household purposes
4342 : 1967	Square slider for oscillating rock shaft for sewing machines for household purposes
4632 : 1968	Square slider for stitch regulator shaft for sewing machines for household purposes
4734 : 1968	Short needle bars for sewing machines for household purposes
4735 : 1968	Arm shaft cams for sewing machines for household purposes
9874 : 1981	Arm and bed assembly for sewing machines for household purposes
10304 : 1982	Feed rock shaft crank for sewing machine for household purposes
10305 : 1982	Feed rock shaft crank for sewing machine for household purposes
10306 : 1982	Feed lifting rock shaft crank for sewing machines for household purposes
11345 : 1985	Oscillating shaft crank for sewing machines for household purposes
11347 : 1995	Household sewing machines — Shuttle driver — Specification (*first revision*)

IS No.	*Title*
12058 : 1987	Specification for slide plates for sewing machines for household purposes
12740 : 1989	Household sewing machines — Stand — Specification
12789 : 1989	Household sewing machines — Table and base — Specification
12798 : 1989	Household sewing machines — Flywheels — Specification
13120 : 1991	Household sewing machines — Flywheel bush — Specification
13192 : 1991	Household sewing machines — Hand attachment assembly
13806 : 1993	Household sewing machine — Closed type shuttle race assembly — Specification
13825 : 1993	Household sewing machine — Arm shaft front bush — Specification
13872 : 1993	Household sewing machine — Stitch regulator — Specification
13972 : 1994	Household sewing machine — Bobbin winder assembly — Specification
14207 : 1994	Household sewing machine — Open type shuttle race subassembly —Specification

ANNEX C

(*Foreword*)

COMMITTEE COMPOSITION

Organization	*Representative (s)*
R and D Centre for Bicycle and Sewing Machines, Ludhiana	Shri A. K. Ahluwalia (***Chairman***) Shri T. P. Singh (*Alternate*)
Altek Lammertz Needles Ltd, Kanchipuram	Shri S. Ganesh Shri T. Murli (*Alternate*)
C. R. Auluck and Sons Pvt Ltd, Ludhiana	Shri Sunil Auluck Shri Kuljeet Singh (*Alternate*)
Consumers’ Forum, New Delhi	Dr S. W. Arya Shri M. A. U. Khan (*Alternate*)
Diamond Engineers India, Ludhiana	Shri Satpal Singh
Directorate General of Quality Assurance (DGQA), Ministry of Defence, New Delhi	Shri K. Sudhakaran Lt. Col. Mahendra Prasad (*Alternate*)
Geminy Industrial Corporation, Ludhiana	Shri Vinay Dua Shri B. C. Pandey (*Alternate*)
G. D. Rupal Industries, Ludhiana	Shri Gurmukh Singh
Gee Tech Hooks, Ludhiana	Shri Manjeet Singh
Jai Enterprises, Jaipur	Shri Tilak Raj Shri Jai Arora (*Alternate*)
Ludhiana Sewing Machines Industries Association, Ludhiana	Shri Dalbir S. Dhiman Shri Baldev Singh (*Alternate*)
M. S. and Brothers, Ludhiana	Shri Gurdev Singh
Mechanical Engg. Research And Development Organization (MERADO)	Shri Syed Salman Mojiz Shri Bhagwant Singh Lal (*Alternate*)
Narindera and Company, Ludhiana	Shri S. Baldev Singh Shri Harinder Jit Singh (*Alternate*)
Navrang Manufacturing Corporation, Ludhiana	Shri Dinesh Kapila Shri Sudesh Kapila (*Alternate*)
Northern India Textile Research Association, Ghaziabad	Shri Vikas Sharma Shri Vivek Agarwal (*Alternate*)
Office of Development Commissioner (MSME), Ministry of MSME, New Delhi	Shri U. C. Shukla Shri K. Singh Sodhi (*Alternate*)
Ordnance Clothing Factory, Shahjahanpur	Shri K. Parthiban
Pooja Machines Pvt Ltd, Pathankot	Shri Arvind Gupta Shri N. K. Joshi (*Alternate*)
Ranew Engg (India) Pvt Ltd, Ludhiana	Shri Sanjeev kumar Jain Shri Abhilash Jain (*Alternate*)
Rita Machines India Private Limited, Ludhiana	Shri Sunil K. Jain Shri Jagdish Chandsamial (*Alternate*)
Rozy Sewing Machine Co., Ludhiana	Shri Boota Ram Ratra Shri Raj Kumar Ratra (*Alternate*)

Organization	*Representative (s)*
Singer India Limited, New Delhi	Shri Mohinder Singh Shri Rohit Dhamija (*Alternate*)
Usha International Limited, New Delhi	Shri Ashish Gupta Shri Hirak Roy (*Alternate*)
Uttam Sewing Machine Co. Pvt Limited, Jalandhar	Shri Jagdeep Rai Shri Manohar Lal (*Alternate*)
Virindra Engineering Works, Ludhiana	Shri Amanpreet Singh
BIS Directorate General	Shri Rajneesh Khosla Scientist 'E' and Head (MED) [Representing Director General (*Ex-officio*)]

Member Secretary

Ms. Khushbu Jyotsna Kindo
Scientist 'B' (MED), BIS

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